

REMARKS

Claims 1-18 are pending in the application. Claims 1-18 have been rejected. The Examiner's comments together with the cited references have been carefully studied. Favorable reconsideration in view of the foregoing amendments and following remarks is respectfully requested.

Claims 1-13 and 17-18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Liu (US 6,548,149) in view of Graziano (Canadian Journal of Chemistry 80(4) p. 401-412). According to the Examiner, while acknowledging Liu fails to mention non-hydrolyzable substituents in silicon alkoxide compounds, it would have been obvious to a person of ordinary skill in the art at the time of the invention to have used hydrolyzable and non-hydrolyzable substituents or blend to balance the hydrocarbon character and crosslink density to ultimately control the absorption rate of the receiving layer.

The rejection is again respectfully traversed for essentially the same reasons as set forth in Applicants previous response filed March 22, 2010, as the Examiner has clearly failed to establish a prima facie case of obviousness, as neither Liu nor Graziano in any way teach or suggest any modification of the actual aluminosilicate particles taught by Liu for any reason, and as the Examiner has not provided any evidence of any teaching or suggestion of any need to modify the aluminosilicate particles of Liu "to balance the hydrocarbon character and crosslink density to ultimately control the absorption rate of the receiving layer." To the contrary, the further cited Graziano in no way relates to balancing hydrocarbon character and crosslink density of aluminosilicate particles themselves, and in no way relates to controlling absorption rate of an inkjet recording element ink-receiving layer. The Examiner provides no support for the apparent allegation that controlling crosslink density of the aluminosilicate particles themselves of Liu would have been suggested by the prior art to control the absorption rate of an ink-receiving layer comprising such particles with polymeric binder (e.g., as opposed to cross-linking of a binder polymer). The proposed rejection is clearly only proposed based on impermissible hindsight reconstruction of the claimed invention, with a contrived hindsight motivation not actually taught or suggested by any prior art teaching.

The Examiner's "Response to Arguments" states that "the examiner takes the position that the usage of hydrolysable, non-hydrolyzable substituents or blends since it is known in the art as disclosed by Totani and the nature of the R group in $RZ(OR')_3$ (where Z = Si or Al) with more hydrocarbon character increases the affinity of a material towards organic medium." While such statement appears to be incomplete, it is in any event initially noted that Totani is not relied upon for the stated rejection of claims 1-13 and 17-18. Further, such argument fails to acknowledge that the actual cited teachings of Totani (paragraph 46) are directed towards the use of various polymeric binder cross-linking agents for use in an undercoat layer, rather than the modification of aluminosilicate particles themselves such as taught in Liu employed in an ink-receiving layer. Such references clearly would not have been suggested to be employed together in any manner that would result in the present claimed invention, as if the cross-linking agents of Totani were employed in the initial formation of the aluminosilicate particles of Liu themselves, they would no longer be available to function as polymeric binder cross-linking agents. Accordingly, such proposed combination would defeat the purpose of the materials as actually employed in Totani. Such destruction of the actual purpose of the applied reference teaching is strong evidence of non-obviousness of the proposed combination, and such proposed combination of teachings accordingly clearly would not have been suggested to one skilled in the art based on the actual teachings of such references.

The Examiner further argues that while Graziano is not directed toward an ink jet element, the effect of "high hydrocarbon character" on "organic solubility" was clearly presented, and given that a "host" of inkjet inks are organic solvent based, increasing the affinity of an ink jet medium for organic solvent based ink would be desirable. While there may indeed be instances where increasing the affinity of an ink jet medium or organic solvent based ink may be desired, such argument ignores that Liu et al. actually employs only aqueous based ink in the examples thereof, and further that Graziano in any event in no way teaches or suggests to one skilled in the art to modify the aluminosilicate particles of Liu so as to include non-hydrolyzable substituents. To the contrary, while Graziano may teach various pairs of organic solutes and solvents, Liu clearly does not want solubilized aluminosilicates, but rather

clearly desires agglomerated (i.e., particulate, as opposed to solubilized) aluminosilicates in the ink-receiving layer thereof. Similarly, the present invention is not directed towards increasing solubility of aluminosilicate particles. Again, the fabricated motivation for the proposed combination of references is not based on any actual teachings of the applied references, but rather the actual teachings of the applied references clearly teach away from the proposed combination, and as such a prima facie case of obviousness has clearly not been established.

As further previously explained, rather than actually teach or suggest any modification of Liu which would result in the present claimed invention, Graziano is directed toward the study of the solubility of non-polar solutes, such as noble gases and hydrocarbons, in water compared to common organic solvents, and based on such study concludes "that the solubility of nonpolar solutes in different solvents is always determined by the balance between the work spent to create the cavity and the work gained to turn on the solute-solvent interactions." The Examiner has further failed to address Applicants' explanation that such conclusion of Graziano is thus based on the relative size of the solute, not on the relative hydrocarbon character of the solute as apparently alleged by the Examiner. Further, the Examiner appears to interpret Graziano's teachings as suggesting that increasing the hydrocarbon character of a hybrid aluminosilicate polymer by including a non-hydrolyzable substituent will cause the inkjet recording medium to have a greater affinity for solvent-based inks. The teachings of hydrocarbon solutes in Graziano, however, has nothing to do with non-hydrolyzable substituents, nothing to do with aluminosilicate polymers, and nothing to do with ink jet recording mediums (especially those designed for use with conventional aqueous based inks as employed in the examples of Liu). Further, Liu is not trying to form hydrocarbon solutes in solvent based inks, and one skilled in the art of aluminosilicate polymers accordingly would not look to Graziano for any particular modification of Liu. Even if one were to combine such teachings (which Applicants maintain would not be reasonably suggested for any reason to begin with), the result would in any event appear to be the selection of a particular hydrocarbon solute, i.e., a dissolved component, rather than a modification of the aluminosilicate polymer of Liu to

include a non-hydrolyzable substituent resulting from use of a silicon compound having such non-hydrolyzable substituent in the formation thereof.

Accordingly, it is clear that the proposed combination of references would not have been suggested by the actual teachings of the cited references. Absent an actual specific teaching or relevant suggestion in the prior art to do so, the Examiner's mere allegation as to obviousness to modify the aluminosilicates of Liu based on the clearly irrelevant teaching of Graziano with respect to impact of size of hydrocarbon solutes on solubility in different solvents does not establish a *prima facie* case of obviousness with respect to the present claimed invention. The rejection further fails to address the previous acknowledgement that aluminosilicate polymers are complex products, such that it accordingly clearly would not be a simple or "obvious" matter to modify the prior art processes to provide new distinct materials with distinct properties in accordance with the present claimed invention. Reconsideration of this rejection is accordingly again respectfully strongly urged.

Claims 14-16 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Totani (US 2001/0009712). According to the Examiner, Liu teaches the recording element that contains silicon alkoxide compounds but fails to mention the specific compounds claimed by the Applicant; Totani discloses silicon alkoxide compounds having a non-hydrolyzable substituent commonly in receiving layer of ink jet recording mediums that includes methyltrimethoxysilane (alkyl group 1 carbon) and vinyltriethoxysilane (paragraph 46); and it would have been obvious to a person of ordinary skill in the art at the time of the invention to have selected from known silicon alkoxide compounds having a non-hydrolyzable substituents such as those disclosed by Totani that read on the applicants' claimed compounds, absent unexpected results.

The rejection is again respectfully traversed for essentially the same reasons as set forth in Applicants previous response filed March 22, 2010, as the Examiner has failed to address Applicants' explanation that while Totani may teach the use of specific undercoat layers on polymeric films or sheets to improve the overall water-resistance of inkjet recording sheets coated over the undercoat layers, which undercoat layers may include cross-linkable polymeric binders (where cross-linking agents include a long list of compounds which includes alkoxysilane

compounds), Totani in no way relates to an ink-receiving layer comprising a hybrid aluminosilicate polymer obtainable by a specified preparation method employing silicon alkoxide having a non-hydrolyzable substituent. As previously explained, due the non-hydrolyzable nature of such substituent, it remains in the formed aluminosilicate polymer, and is thus not available to be employed as a separate polymer binder crosslinking agent as is required in the element of Totani. Given the context of the problem being solved by Totani and the use of alkoxysilane compounds in general (no distinction is made by Totani to use silanols with both hydrolyzable and non-hydrolyzable substituents or a blend) as cross-linking agents for common polymeric binders, one of ordinary skill in the art would not have contemplated combining the teachings of Totani with Liu to obtain hybrid aluminosilicate polymers as employed in the present invention. Rather, as explained above, the actual teachings of such references would teach away from such combination, as if the cross-linking agents of Totani were employed in the initial formation of the aluminosilicate particles of Liu themselves, they would no longer be available to function as polymeric binder cross-linking agents. Use of such a hybrid aluminosilicate polymer obtained from silicon compounds having non-hydrolyzable substituents would accordingly clearly not have been taught or suggested by Liu et al. in view of Totani. To the contrary, Liu only disclose use of fully alkoxyated (i.e., all hydrolyzable groups) silicon compounds in the preparation of the aluminosilicates thereof (see, e.g., use of ethyl orthosilicate at col. 23, line 15 of Liu et al), and Totani only proposes use of alkoxysilane compounds as cross-linking agents for undercoat layer polymer binders. The claimed hybrid aluminosilicate polymers themselves are clearly distinct, and Liu et al combined with Totani does not suggest the use of a hybrid aluminosilicate polymer in accordance with the present invention. Absent a specific teaching in the prior art to do so, the Examiner's mere speculation clearly does not establish a *prima facie* case of obviousness with respect to the present claimed invention, and to the contrary, to the extent such combination is clearly inconsistent with the actual teachings of the applied reference, clearly would not have been obvious. Reconsideration of this rejection is accordingly again respectfully strongly urged.

In view of the foregoing remarks, the claims are now deemed allowable and such favorable action is courteously solicited.

Should the Examiner consider that additional amendments are necessary to place the application in condition for allowance, the favor is requested of a telephone call to the undersigned counsel for the purpose of discussing such amendments.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'Andrew J. Anderson', is written over a horizontal line.

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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.